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(54) ELECTRON MULTIPLYING ELEMENT

(57) Abstract:

PURPOSE: To reduce running time and scattering of electrons, by forming a plural number of inclined through holes in an insulating substrate, with their first hole surfaces composed of the first secondary electron releasing layers and with their facing second hole surfaces composed of the second secondary electron releasing layers.

CONSTITUTION: A plural number of nearly circular-shaped inclined through holes 2 are formed in a glass substrate 1 by photoetching or the like. Vacuum evaporation of Sb or the like is performed on the inclined surfaces, which are kept at acute angles to the substrate 1, of the through holes 2, to form the first secondary electron releasing layers 5, and the second secondary electron releasing layers 6 are formed on the opposite inclined surfaces separated by the separating grooves 7. With power sources 10a and 10b connected to the respective releasing layers 5 and 6, electrons are made incident to the releasing layers 5 and their resultant secondary electrons are made incident to the releasing layers 6, to release the secondary electrons besides. Therefore, secondary electron multiplication can be realized twice with a single element, and extremely large multiplication factor being available with multi-staged elements.